KRISS SUPER V SUSTEM

CRB/SO ARMORER'S TRAINING COURSE

2nd edition, July 2009



INTRODUCTION AND COURSE OVERVIEW

- Purpose: To provide a general introduction to the KSVS operating principles, design, mechanics, disassembly, maintenance and re-assembly so that KCD's can achieve the understanding and expertise required to successfully sell and service the KRISS family of firearms.
- Major topics to be covered in presentation:
 - Disassembly, Maintenance, Re-assembly, and FAQs.
- Weapon characteristics:
 - Mechanically delayed blowback, hand-held or shoulder-fired, semi-automatic .45ACP carbine. Using the patented KRISS Super V System operating system.



- Slider and Bolt assemblies, Pg 4
- Upper housing and lower housing
 - Upper housing pg.5
 - Ejection Port, pg. 6
 - Safe/Fire selector levers, pg. 7
 - Picatinny Rail and mounting, pg.8
 - Fire Control Group (FCG) frame assembly, pg.9



SLIDER AND BOLT

- 1. Clear and safe the weapon.
- Ensure bolt is forward. Remove the bottom two push pins and pull the charging handle to release the slider and bolt assembly from the lower housing. Grasp the base plate and pull down and pull upward on the gun.
 Ensure that the pins are straight and free of any burrs.
- Rotate bolt 90 degrees and remove from slider. Be sure to note to the orientation of the bolt during disassembly for reassembly.
- At each disassembly, execute a slight tap on each of the two slider races. This should create an even harmonic tone, if it does not, then damage has occurred to the slider















UPPER AND LOWER HOUSING

- Remove remaining two push pins located in the upper housing. One forward of the ejection port and the other forward of the trigger.
- Separate the upper and lower housing by grasping the upper housing and pulling upward while holding the lower housing.

Push Pins





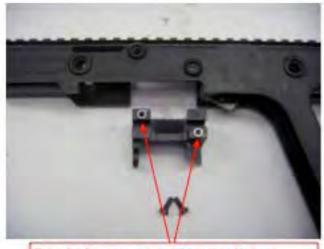




EJECTION PORT

- 1. Using a 2.5mm hex wrench, remove the two M-4 socket head cap mounting screws on the left hand side of the housing.
- Remove the ejection port from housing; taking care to capture and save the two stainless steel washers, if present, on the backside of the ejection port for reassembly. Late model serial numbers may not use these washers.





Stainless steel washers



FIRE/SAFE SELECTION LEVERS

1. Remove the ambidextrous Fire/Safe levers with a 2.0mm Allen wrench.







Picatinny Rail Disassembly

 To remove the Picatinny Rail from the upper housing; use a 1/16 or 1.5mm punch, drift the rail retaining pin out (left or right) and push the rail forward enough to expose the three hex head mounting screws at the rear of the upper housing.

Note: If the rail is too tight to move by hand, check that the end cap/flashlight set or buttonhead screw is removed. If so, a piece of nylon stock can be used move the rail.









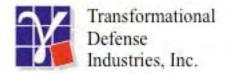


FCG, Fire Control Group

1. With the ejection port, Picatinny Rail and selector lever assemblies removed, pull the trigger forward, this will release the FCG from the housing and make removal easier through the ejection port area of the housing.

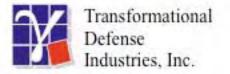






Disassembly and Inspection

- Lower Housing;
 - Barrel Shroud PG.11
 - Bolt Lock Block PG.12
 - Housing Assembly PG.13, 14
 - Picatinny Rail PG. 15



Barrel Shroud:

1. Using a 2.0mm hex wrench, back out the set screw enough from the collar so the barrel shroud can be removed.









Bolt Lock Block Assembly

1. With a 2.0mm hex wrench loosen the 4 mounting screws (screws are Loctited with 222 at assembly) for the Bolt Lock Catch Block assembly and remove from the lower receiver. Note: The early design incorporates a spacer under the block, current and future serial numbers may not have this part.

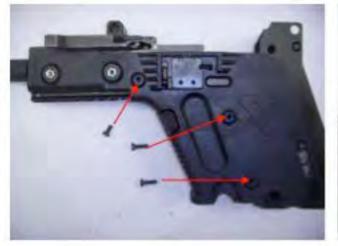






Housing Assembly

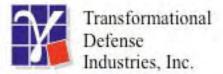
- 1. To remove the housing (injection molded polymer), use a 2.5mm hex wrench to remove the six screws. Three on the right and three on left side of the housing. Note: The placement of the one shorter screw on each side, located closest to the Barrel Trunnion, mounting points on each side.
- Unhook the return spring for the charging handle slider.











Housing Assy. (Cont.)

 Referencing the photo's, grasp the barrel and press the housing downward.
 Once the housing has separated from the receiver enough to grasp, separate completely.











Picatinny Lower Rail assembly

1. To remove the Picatinny Rail from the lower housing; use a 1/16 or 1.5mm punch, drift the rail retaining pin out (left or right) and push the rail forward of the lower housing.

Note: If the rail is too tight to move by hand, use a piece of nylon stock to move the rail.



- Lower Housing PG. 17
- Upper Housing PG.18

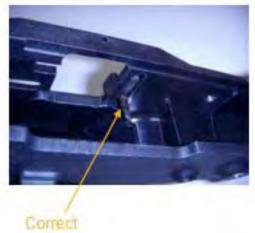
Lower Housing Reassembly

- 1. Reinsert the lower Picatinny Rail and drift the retaining pin back into the mounting hole.

 Note: The rail must be mounted one with the Pin Hole lining up with the slot in the lower housing.
- Reinsert the metal receiver into the composite housing. Pay attention to the last round bolt catch trigger; it must align with the cutout in the left hand receiver plate







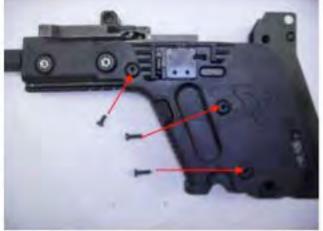


Lower Housing Reassembly

1. Ensure all mounting screw holes are aligned properly. The short screw will go into the hole just fwd of magazine well. The 2 large screws are used in the main body of the housing. Torque all screws to 1Nm using Loctite 242

Note** significant effort maybe required in assembling the receiver into the housing for low serial number models.

 Re-hook the return spring for the charging handle slider.
 Ensure charging handle and bolt lock trigger operate freely.











Barrel Shroud

- 1. The end of the barrel shroud has a high temp "O" ring to help with alignment and reduce rattle, use a small amount of lubricant or high temp grease on this 'O" ring to ease assembly.
- 2. Slide the shroud over the barrel and align the muzzle end with the barrel. Be careful not NOTES: to tear the "O" ring. Verify alignment of the 2.0mm hex set screw with the recess on the underside of the barrel and torque to 2Nm and Loctite with 242.







Bolt Lock Block Assembly

- If present during disassembly, reinstall the spacer in the cutout in the housing, the notch must align with the receiver plate.
- 2. Align the Bolt Lock Block, insert the 4 2.0mm hex mounting screws, using Loctite 242, and torque to 2Nm









Fire Control Group (FCG)

- 1. Reinsert the FCG, trigger first, into the upper housing. Ensure alignment of the take down pin holes and selector lever holes. Place one takedown pin in the hole just forward of the trigger, this will help with alignment.
- Reinsert the Left and Right selector levers and torque to 1nm (they are specific to the Left or Right side).
- 3. Torque the 3, M-4 mounting screws to 1nm. IMPORTANT NO LOCTITE!!!



The levers are right hand and left hand specific. If reversed they will not operate the Safe/Fire lever correctly and may cause severe harm and injury to the operator.







EJECTION PORT

- 1. Install the ejection port into the housing; verifying the proper placement of the two stainless steel washers, if present, on the backside of the ejection port. If loose or fallen off, a drop of super glue will help in placement for installation.
- Torque the two M-4 socket head cap mounting screws on the left hand side of the housing to 1Nm.





Picatinny Rail

- 1. Slide the picatinny rail back on the dovetail. Make sure the retaining pin hole is towards the muzzle end. Use your punch to assist in aligning the hole. Reinsert the retaining pin and drift it in place using a 1/16 or 1.5mm punch, ensuring that it does not protrude beyond the outside edges of the rail left or right.
- Reinsert the M-3 screw in the front of the rail and make it flush.





SLIDER AND BOLT

- Ensure the bolt is properly aligned, with the extractor on the top right, before assembly.
- Insert the front two bolt lugs in the bottom set of tracks and push forward until the rear set of bolt lugs are in the bottom tracks.













SLIDER AND BOLT CONT.

- 1. Rotate the slider up into the rear track and push inward into the receiver until the base plate is flush with both receiver plates.
- Insert one push pin into the forward most pin hole at the bottom just behind the magazine well









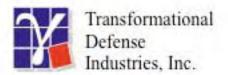
UPPER AND LOWER HOUSING

- Remove the push pin used in locating the FCG in the upper housing.
- 2. Make sure that the hammer is in the cocked position. Place the upper housing over the lower and align. Press downward and assemble. Ensure that the charging handle remains clear.
- Insert the remaining 3 take down pins









INSTALLATION OF ACCESSORIES

- Light Receptacle Cover assembly
- Grip Storage Module
- BUIS



ACCESSORIES

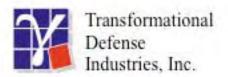
LIGHT RECEPTACLE COVER and GRIP MODULE ASSEMBLIES

- 1. A removable cover assembly is provided with each gun. It may be removed for installation of the light adapter kit.
- 2. A Magpul Grip Core for battery storage is provided with the gun.







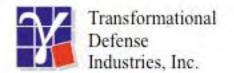




OEM Sights

 Custom KRISS flip up/ down AR-type sights are standard on late-model SN's.

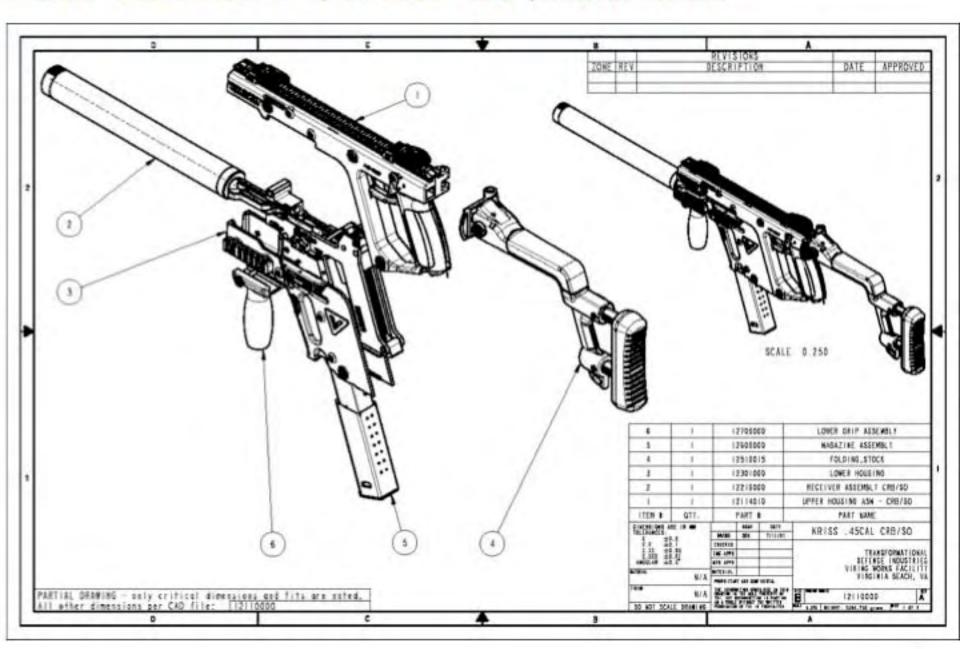




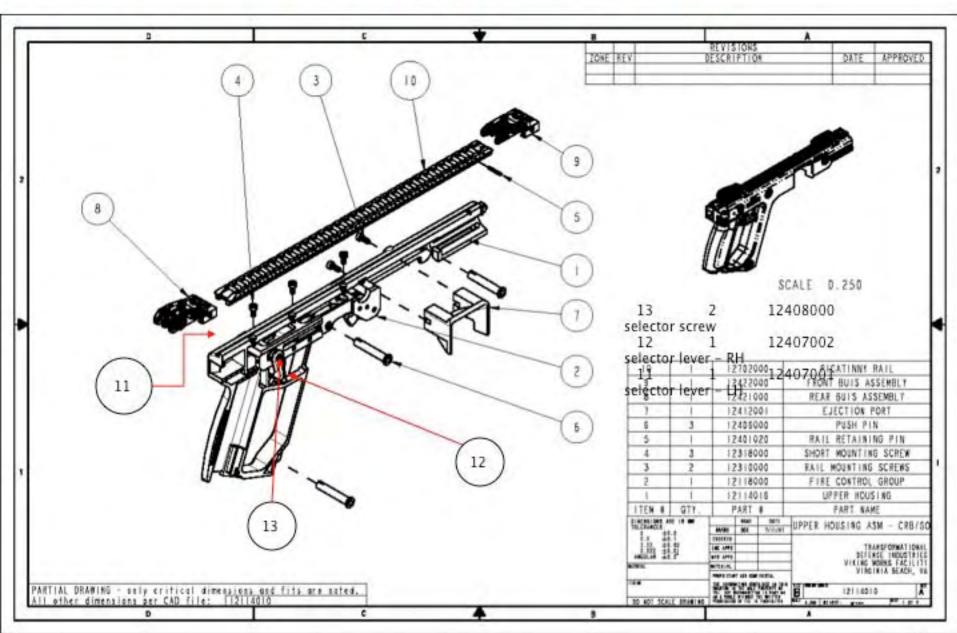
EXPLODED VIEWS

• Overall	.pg. 31
Upper Housing assembly	pg. 32
Lower Housing assembly	pg. 33, 34
Slider and Bolt assembly	pg. 35, 36
Stock assembly	.pg. 37
Fore Grip Assembly	.pg. 38

EXPLODED VIEW: OVERALL

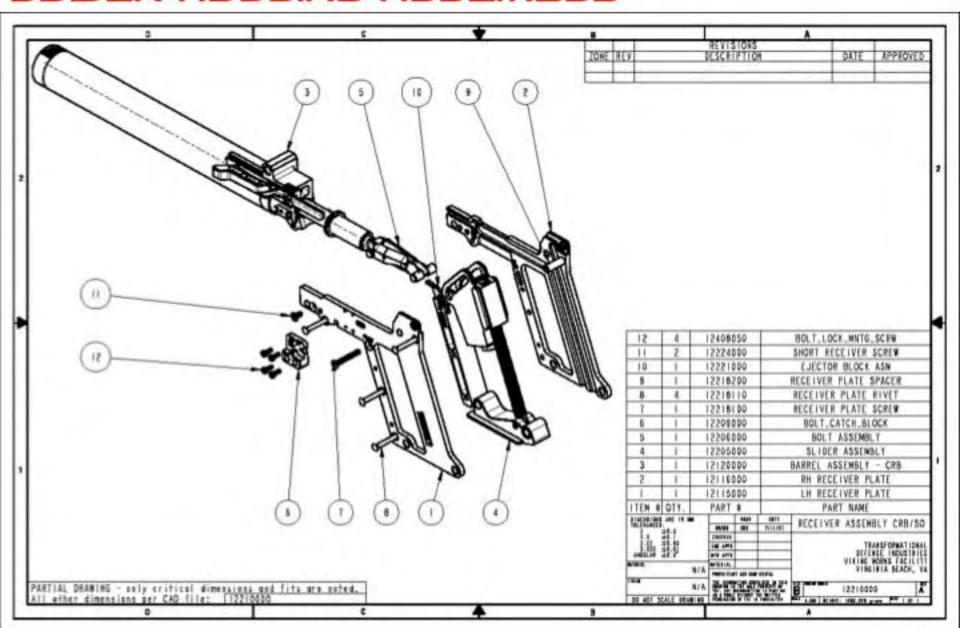


EXPLODED VIEW: UPPER HOUSING



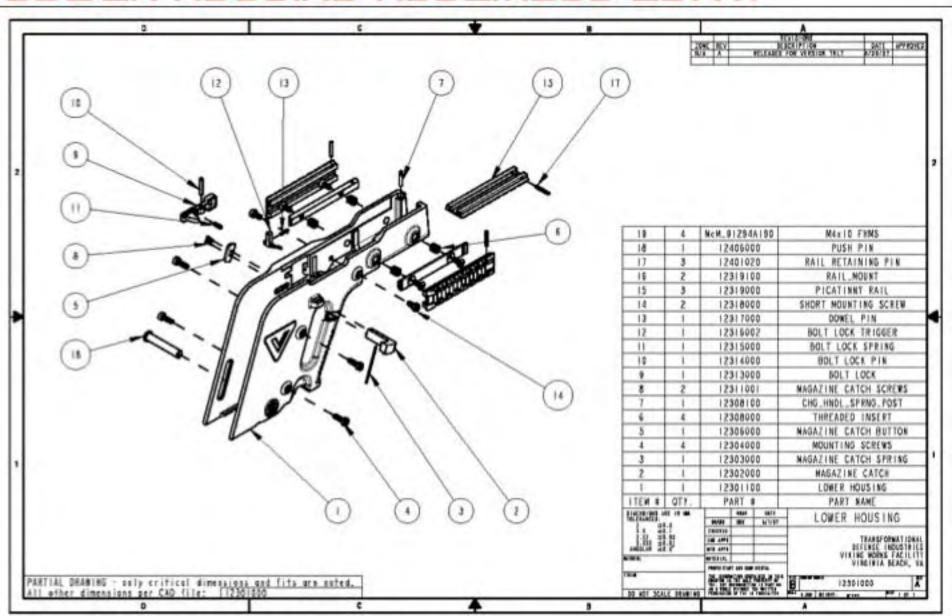
EXPLODED VIEW:

LOWER HOUSING ASSEMBLY

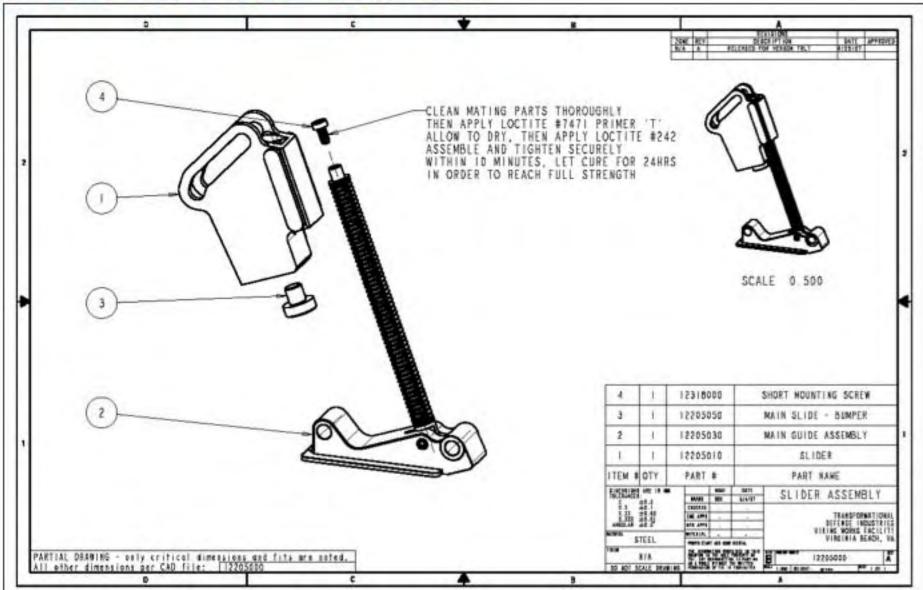


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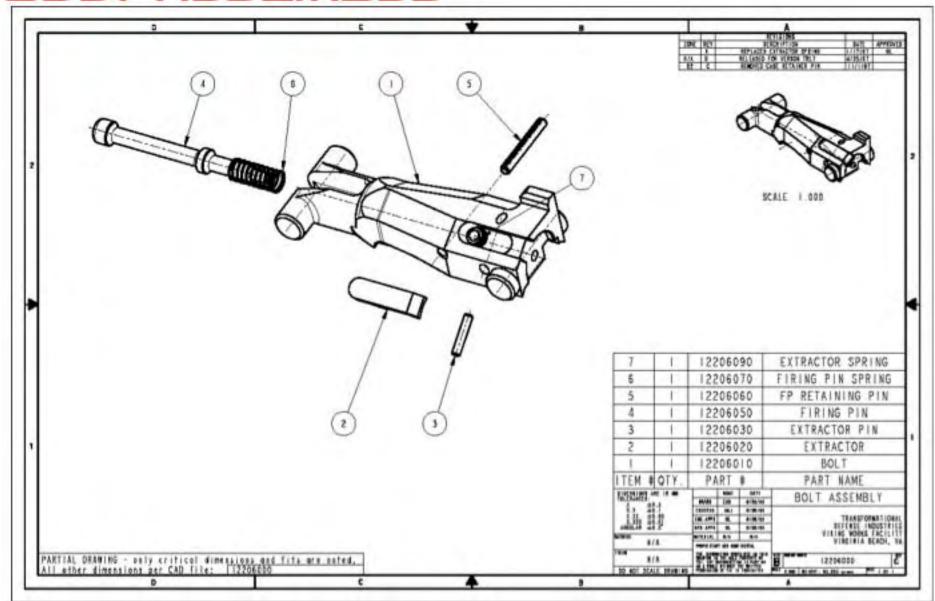
LOWER HOUSING ASSEMBLY CONT.



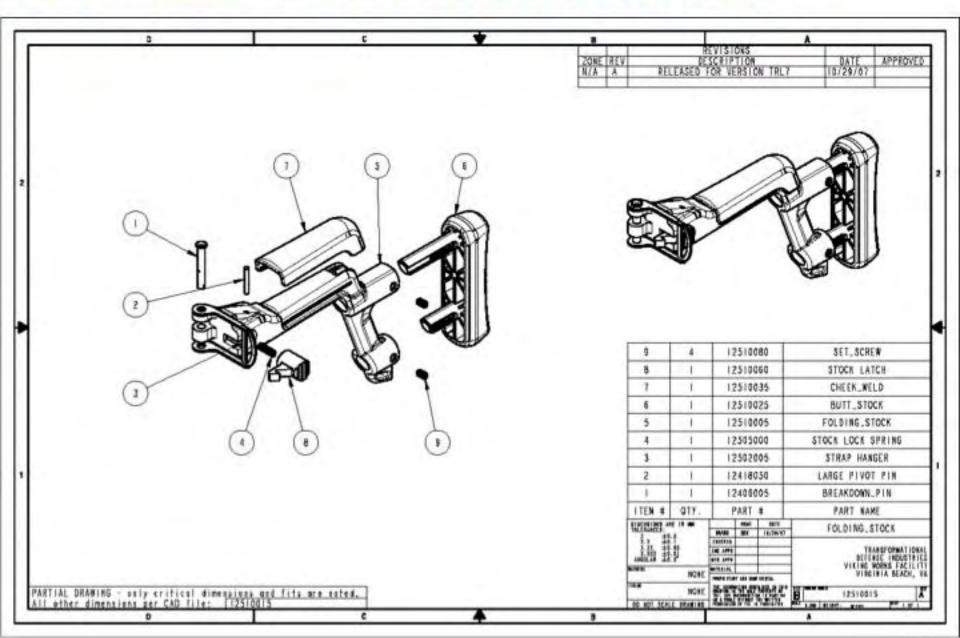
EXPLODED VIEW: SLIDER ASSEMBLY



EXPLODED VIEW:

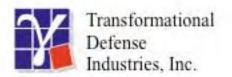


EXPLODED VIEW: STOCK ASSEMBLY



INFORMATION

- Frequently Asked Questions
- Special Tools
- KRISS Lifetime Warranty Information
- Manufacturer and Contact Information



What are the primary materials of the primary components of the

CRB/SO's Barrel, bolt, upper and lower receivers; synthetics (what type?), etc.

Barrel is 4140 steel alloy, barrel trunnion 4140, receiver plates are A2 tool steel.

Bolt is 4340 steel alloy.

The V-block Slider mass is 370 grams and is made of 4140 steel alloy. All hardened to appropriate hardness for wear resistance.

Ejector mount and fire control group frame are 6061 T-6 aluminum.

Spring plate (base of receiver) that holds the main spring guide is 7075 aluminum.

Many steel and aluminum parts are precision CNC machined.

We are currently using metal injection molded (MIM), near net forgings, and investment cast tools to reduce cost and maintain reliability of several components.

Upper and lower housings are an injection molded composite of a BASF Polyamide (Nylon66) and 15 percent (by volume) short fiber-glass filled for strength, stiffness, temperature stability, lightweight.

The folding stock is same Nylon alloy but with 33 percent fiber fill.

Can you give me a description of the operating system?

The system is delayed blow-back. Operates from closed bolt.

Cyclic rate is approx 1200 RPM.

When cycling the slider (inertial mass) is forced downward at 72 degrees off barrel axis, generating forces that arrest muzzle climb and reducing recoil forces in the barrel axis.

The bolt follows the slider in its own V-shaped race, hence the SuperV moniker. In counter recoil, the energy stored in the recoil spring returns the bolt and slider into battery stripping and feeding the next round.

All of the primary loads generated during recoil and counter recoil are absorbed by the steel and aluminum materials in the receiver, slider, bolt trunnion assemblies, not by the polymer composite frame.

What are the future plans/adaptations for the design?

The .40 S&W versions of the KRISS Super V Vector will be in the market at the end of 2009, and introduced formally at SHOT in January, 2010. All 3 models will be available as will MagEx sku's for the .40. We will continue to use Glock magazines.

Although future product plans are confidential at present, we are confident we can successfully utilize the KRISS System for any standard pistol cartridge and are studying both 9mm and .357 Sig at present.

Our engineers have also prototyped a 12ga. semi-auto sporting shotgun and a . 45 ACP pistol design that look very promising.

Why was the system developed?

Our vision was to create a more controllable weapon that would allow the operator to put more rounds on target, more quickly.

We felt if we could demonstrate this in a caliber that is powerful yet has been historically hard to control such as the .45 ACP, that the LE/military and civilian market would take notice and begin a broader adoption of these large caliber pistol systems.

We believe this technology now puts this powerful pistol caliber in the hands of the smallest/slightest shooter as well as the largest shooter most professional operator.

Our objective is to establish a market position with this .45 ACP system and then quickly expand to other calibers and platforms. We want to put all the recoil energy generated at the time of ignition to the benefit of the shooter.

Are there any future CRB/SO magazine plans?

No. We are in the firearm business; not the proprietary magazine business.

Of course, we have our MagEx sku's which extend the G21 to 30 rounds, and will have the equivalent products in .40 S&W later in 2009.

We have seen outstanding reliability with the Glock magazines and have no plans to change at this time.

What type are the back-up sights?

The standard OEM KRISS BUIS are a custom-designed system built by MWI to our design.

Please note: Even though these look like standard AR sights, they are not. Standard AR BUIS will not work on the KRISS, nor will the KRISS sights work on an AR. Please ensure your customers know this.

What does the CRB/SO come with? Sights, case. sling, etc.?

All KRISS firearms ship with the following OEM equipment:

- · Barrel Shroud;
- Custom BUIS
- Full length Picatinny rails top and bottom
- 1-13 round Glock 21 magazine,
- Folding stock (except in fixed stock states) with adjustable pull
- Grip storage module
- OTIS mini cleaning kit
- Light receptacle cover
- · Operator's manual

We ship in an attractive KRISS Super V Royal Case with high quality foam insert to protect the firearm.

What is the purpose of the hole above the barrel at the front of the upper receiver? It looks to be designed to hold a light, but how is the light operated?

The hole in the front of the upper housing accommodates a Surefire Executive Series E1B custom 80 lumen tactical light with the required KRISS Adaptor.

The light is equipped with a remote pressure switch provided by Surefire which is snaked out the slot on the right side of the upper housing and attaches with velcro strip to the magazine well indent on the lower housing or to a foregrip.

Which part is considered to be the "receiver"? The lower section with the serial number? Is there any sort of internal steel/aluminum chassis in the receiver?

The lower receiver is the SN# part and what we register with the BATF.

As explained in Q1 the receiver plates are steel and once assembled to the trunnion block using a high tech industrial spin riveting process. Once assembled, we apply the SN's and register.

We have a modification to the interface of the upper receiver and fire control group housing the prevents swapping a SMG FCG to a semi-auto CRB/SO. The steel and aluminum receiver assembly carry all the primary loads of the system, not the composite housing. This accounts for the high reliability and robustness of the system.

General Questions

- What does CRB/SO stand for?
 - -- CRB/SO stands for Carbine/Special Operations.
- What type of steel is the barrel made from: what type of crown does it have?
 - The barrel is made of 4140 steel, with a precision machined 79 degree crown.
- What are the number of grooves, rate of twist/direction of twist in the bore?
 - The barrel is made of 4140 steel. 1:16 RH twist, precision machined, with 6 grooves.
- What is type of finish on the steel?

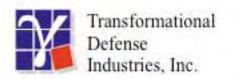
- -- Production finish on steel is manganese phosphate (Parkerizing).
 - -- Finish on Aluminum is hard anodizing.

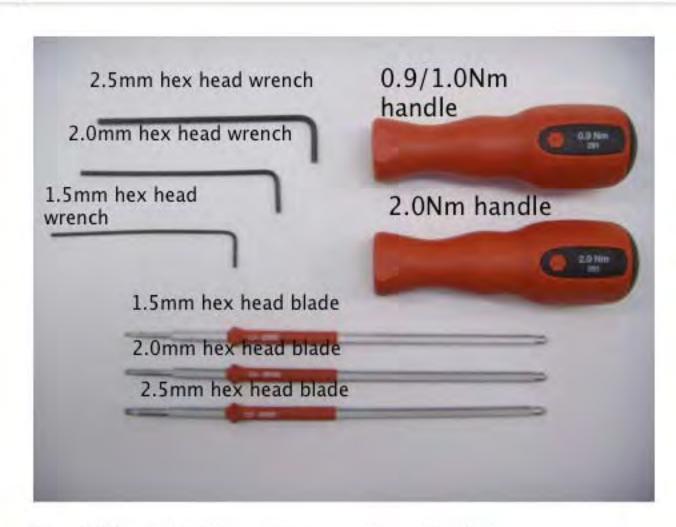
SPECIAL TOOLS LIST

SPECIAL TOOLS LIST:

- 0.9/1.0 Nm (newton meter) torque wrench handle.
- 2. 2.0Nm torque wrench handle.
- 3. 1.5mm, 2.0mm, 2.5mm, hex head blades
- 4. 1.5mm, 2.0mm, 2.5mm, hex head wrenches

Notes:





SAMPLE WARRANTY INFO.

KRISS SUPER V Vector CRB-CRB/SO .45 ACP Lifetime Warranty

Transformational Defense Industries Inc. (TDI) warrants its KRISS Super V Vector CRB/SO and CRB civilian carbines to be free from defects in materials and workmanship. This KRISS Warranty is effective from the date of purchase and lasts as long as the original consumer purchaser owns the KRISS firearm.

To authorize this warranty, the purchaser must notify TDI upon purchase of their KRISS firearm by completing the KRISS Online Warranty Registration at or by submitting the mail-in card enclosed.

Any such defects of which TDI receives written or electronic notice during the term of this warranty, will be remedied by TDI without charge, within a reasonable time after such notification and delivery of the firearm as provided below.

This warranty does not cover:

Defects or malfunctions resulting from careless handling, or modifications.

Use of defective or improper ammunition, corrosion, neglect, abuse, ordinary wear and tear, or unreasonable use (See Owners Manual for ammunition recommendations).
Criminal misuse, negligence, or use under the influence of drugs or alcohol.

NOTE: TDI SHALL NOT BE RESPONSIBLE IN ANY MANNER WHATSOEVER FOR INJURY, DEATH OR DAMAGE TO PROPERTY AS A RESULT OF THE INTENTIONAL OR NEGLIGENT DISCHARGE OF THIS FIREARM, OR FROM ITS PROPER FUNCTION WHEN THE FIREARM IS USED FOR PURPOSES FOR WHICH IT WAS NOT DESIGNED

SAMPLE WARRANTY INFO

Problems and Warranty Claims

If you experience a problem with your KRISS that cannot be resolved with TDI over the phone, through our website or with your KRISS Certified Dealer, please return your firearm to your local KRISS Certified Dealer (list available at ________) along with your contact information. Your KCD will return your firearm to TDI via overnight delivery and we will respond with problem resolution actions steps to you and your KCD dealer within 48 hours of receipt of your firearm.

If you or your KCD have any questions or need to obtain shipping information, please contact us M-F 0900-1700 Eastern Time at 757.821.1089, extension 302.

Warranty claims should state the model and serial number of the firearm concerned, all necessary email and voice contact information and a description of the difficulty experienced. TDI will accept no responsibility for loss or damage in transit. It is important that you comply with federal, state and local laws and regulations in the shipping of firearms to TDI.

Upon receipt, your firearm will be assigned to a gunsmith. After the work is completed, your firearm will be returned to you. Transportation and insurance charges for return to the owner will be paid by TDI if the claim is covered by the warranty.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE GIVEN AND ANY AND ALL LIABILITY FOR BREACH OF ANY IMPLIED WARRANTY OR WARRANTY CREATED BY LAW IS DISCLAIMED.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

UNDER NO CIRCUMSTANCES SHALL TDI BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WITH RESPECT TO ECONOMIC LOSS, INJURY, DEATH OR PROPERTY DAMAGE, WHETHER AS A RESULT OF BREACH OF THIS WARRANTY, NEGLIGENCE OR OTHERWISE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you in whole or in part.

This warranty gives you specific legal rights. You may also have other rights that vary from state to state.



NOTES:

Transformational Defense Industries Inc.

TDI Viking Works facility PO Box 8928 Virginia Beach, Va. 23450

Dennis Daroczy - DDAROCZY@KRISS-TDI.COM

Customer Service: 757-821-1089 ext. 302 Warranty information: 757-821-1089 ext. 301

M - F 9:00am - 5:00 pm ET

